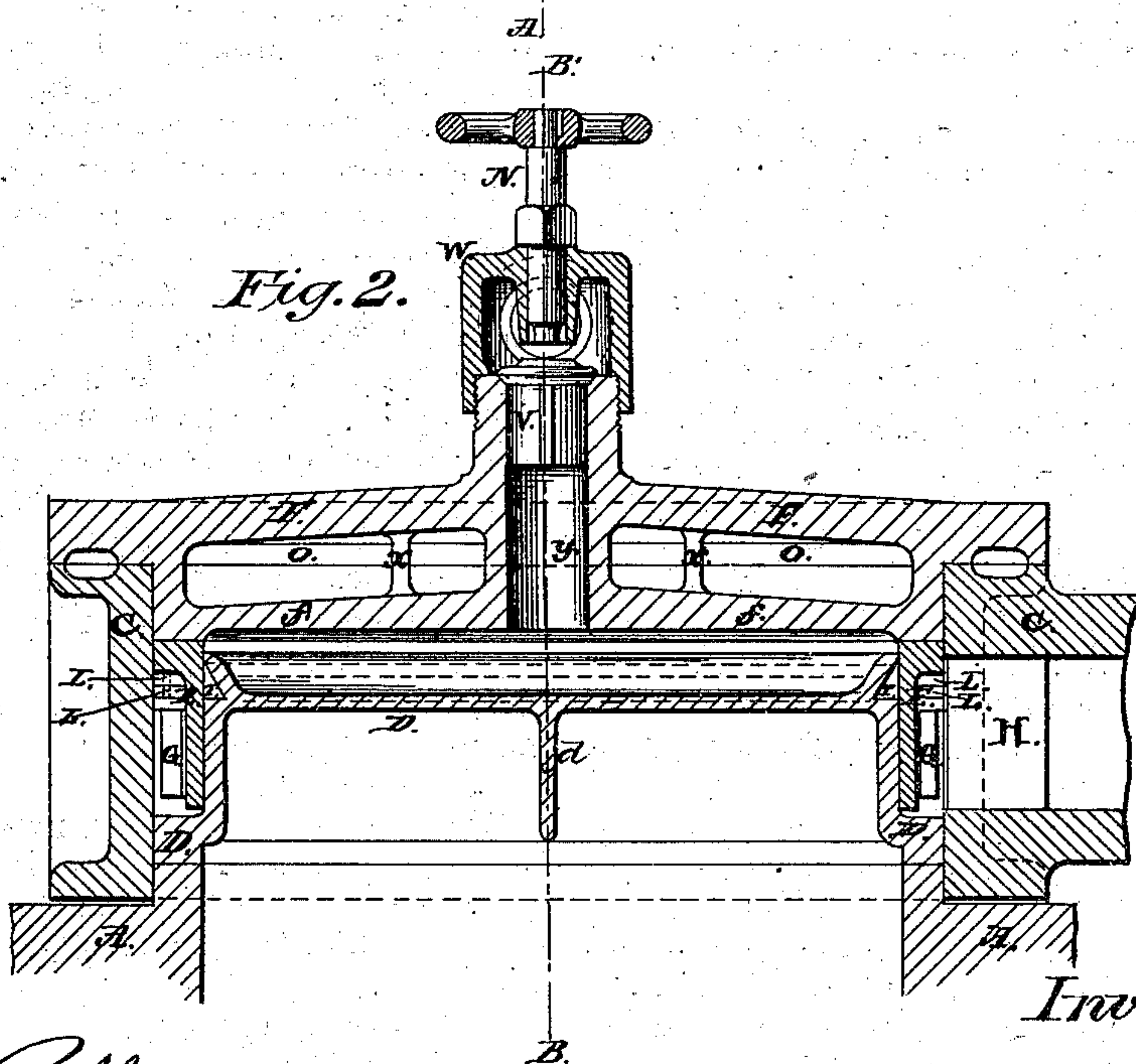
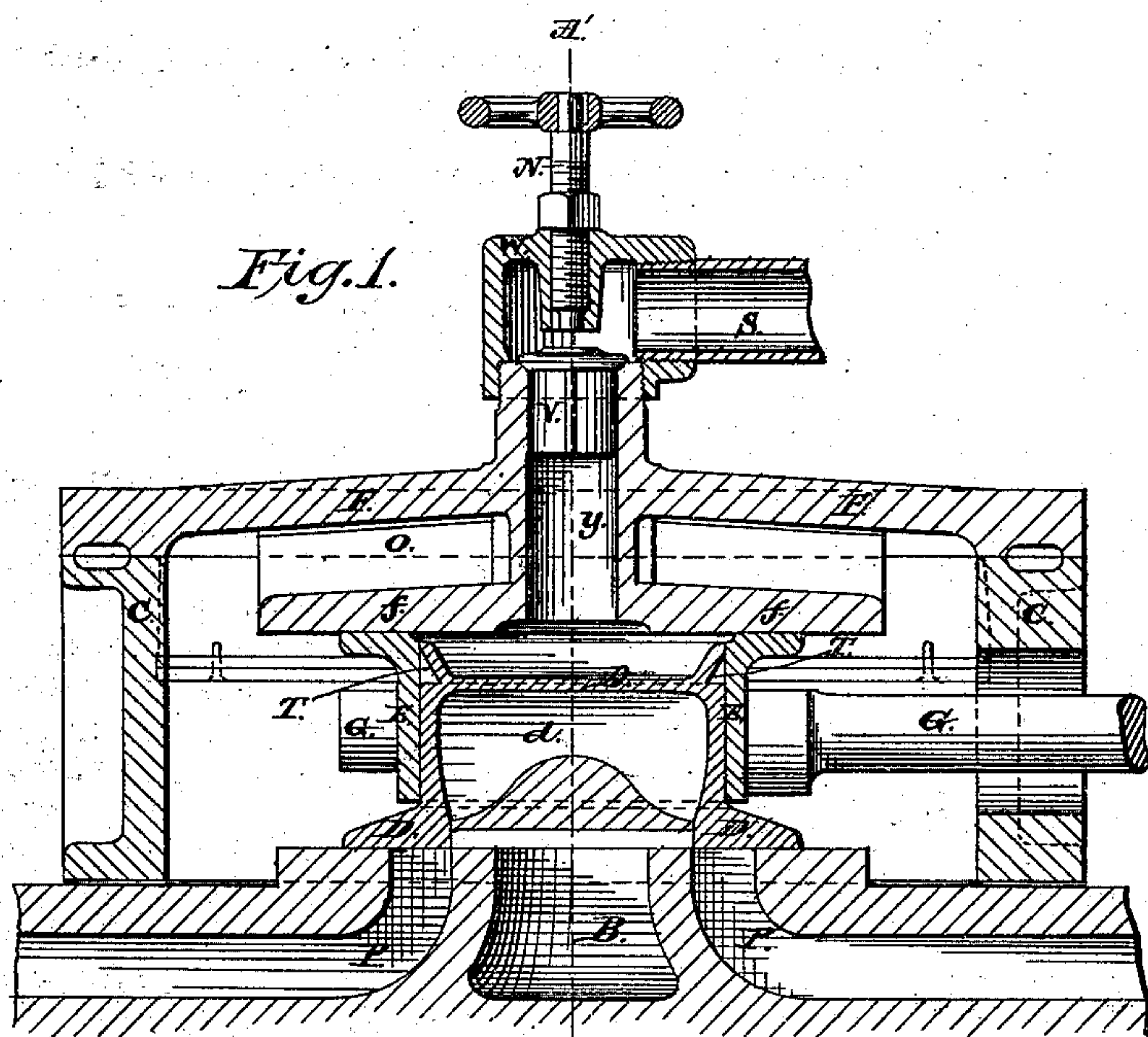


A. J. STEVENS.  
Balance Slide-Valves.

No. 154,529.

Patented Aug. 25, 1874.



*Attest:*

*John Rafferty*  
*Brn. Smith*

*Inventor:*

*Andrew Jackson Stevens*



# UNITED STATES PATENT OFFICE.

ANDREW J. STEVENS, OF SACRAMENTO, CALIFORNIA.

## IMPROVEMENT IN BALANCE SLIDE-VALVES.

Specification forming part of Letters Patent No. **154,529**, dated August 25, 1874; application filed January 24, 1874.

*To all whom it may concern:*

Be it known that I, ANDREW JACKSON STEVENS, of Sacramento, in the county of Sacramento and State of California, have invented new and useful Improvements on the Balance Slide-Valves for Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 represents a vertical longitudinal section of the valve, taken on the line B B of Fig. 2. Fig. 2 is a vertical cross-section on the line A A of Fig. 1.

Similar letters of reference indicate corresponding parts.

D is the main valve, which is similar in construction to the common slide-valve, with the exception of its being carried up higher, and having a strengthening brace or web, *d*, through its center. It also has a V-shaped groove extending entirely around it near the top, for the purpose of holding the packing-ring T, which is made of type-metal or any other non-corrosive metal. E is the balance-yoke or follower, fitted to, and encircling for nearly its whole height, the main valve D. This yoke or follower is nicely fitted, but not so snugly but what it can be removed and replaced easily; and a steam-tight joint is maintained by the packing-ring T. This balance-yoke or follower works steam-tight against a smooth surface or seat, *f*, on the inner side of the steam-chest cover F, thereby protecting the back of the main valve from pressure, thus allowing the same to be worked with great ease. O is a passage-way through the steam-chest cover, for the purpose of allowing steam to pass freely from end to end of steam-chest. X X are strengthening-webs, for the purpose

of preventing seat *f* from being sprung by pressure. C is the steam-chest made in the usual form. L L are bars made of steel or any other metal suitable for the purpose, and are let into the steam-chest at either end sufficiently to hold them securely. These bars are intended to carry the balance-yoke E, and hold the same in steam-tight contact with its seat when the same is not held by steam-pressure. Bars L L are made in pairs, the top one being adjustable, and can be raised and adjusted as it becomes worn on the top surface. H is the steam-passage leading into steam-chest. G is the valve yoke or stem, which is constructed in the usual manner, and encircles the balance-yoke or follower E, thus allowing the main valve to rise easily. W is a valve-chamber, fitted on the projection on top of steam-chest cover F. V is a puppet-valve, fitted into passage *y*, for the purpose of allowing free passage to the atmosphere of all steam which may find its way to the back of main valve D. The puppet-valve V is also intended to prevent dust, cinders, smoke, or air from passing into the steam-chest through the pipe S and opening *y*. N is a set-screw for the purpose of holding valve V to its seat when it is desirable to do so. S is a pipe, which can be led from chamber W to any desired place, for the purpose of conducting leakages from steam-chest.

Having thus described my invention, I claim as improvements, and desire to secure by Letters Patent—

The bars L L and balance-yoke E, in combination with a valve and seat *f*, substantially as and for the purpose described.

ANDREW JACKSON STEVENS.

Witnesses:

JOHN RAFFERTY,  
BEN. SMITH.